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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/808,835 | 03/25/2004 | Joseph E. Harter JR. | DP-311983 | 6724 |

7590 05/23/2006

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| EXAMINER |
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HANNAHER, CONSTANTINE

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| ART UNIT | PAPER NUMBER |
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2884

DATE MAILED: 05/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/808,835

Applicant(s)

HARTER, JOSEPH E.

Examiner

Constantine Hannaher

Art Unit

2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20060126.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patchell (US006753766B2) in view of Galvin *et al.* (US004321594A).

With respect to independent claim 1, Patchell discloses a detector 24 for detecting thermal radiation in multiple coverage zones (Fig. 1) comprising a support structure (column 9, lines 44-45), a first thermal detection sensor S1 coupled to the support structure and arranged to detect thermal energy in a first coverage zone 34, a second thermal detection sensor S2 coupled to the support structure and arranged to detect thermal energy in a second coverage zone 34, and an optical lens 48, 50 coupled to the support structure (Fig. 4A) and arranged to direct thermal energy from the first coverage zone to the first detection sensor and to direct thermal energy from the second coverage zone to the second thermal detection sensor. Without further definition on the part of the applicant, the use of “an” does not prohibit multiple lenses. Nevertheless, while Patchell is explicit that the two sensors S1 and S2 may be housed in a single support structure, the disclosure does not state unequivocally that a single “optical lens” performs the two acts of direction from zones 34 to the two sensors. Galvin *et al.* shows (Fig. 6) that the use of an optical lens 32 arranged to direct thermal energy from a first coverage zone to a first thermal detection sensor 34 and arranged to direct thermal energy from a second coverage zone to a second thermal detection sensor 36 has long been known. In view of the single support structure and the problems Patchell identifies when the

sensors have different temperatures at column 15, lines 28-41, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the lens 48, 50 had a sufficient extent such that the direction of thermal energy from the two zones to the two sensors (respectively) occurred through a single optical lens. A compact arrangement in which the sensors see an optical lens of similar temperature in the respective field of view would result.

With respect to dependent claim 2, the first and second thermal detection sensors in the apparatus of Patchell comprise an infrared sensor (column 5, lines 21-30).

With respect to dependent claim 3, the infrared sensor in the apparatus of Patchell comprises a thermopile sensor (column 8, lines 14-30).

With respect to dependent claim 4, the support structure in the apparatus of Patchell comprises a conductive heat sink 60 thermally coupled to the first and second thermal detection sensors (column 9, lines 2-4).

With respect to dependent claim 5, the heat sink 60 in the apparatus of Patchell is further coupled to the optical lens (through circuit board 46 and the element creating cavity 58, Fig. 5). Also the heat sink 60 in the apparatus of Patchell maintains the first and second thermal detection sensors at substantially the same temperature (through their proximity).

With respect to dependent claim 6, the first and second thermal detection sensors in the apparatus of Patchell are coupled to the heat sink 60 via a thermally conductive adhesive (column 8, lines 62-65).

With respect to dependent claim 7, the support structure in the apparatus of Patchell comprises a chamber 58 having interior walls extending from each of the first and second thermal detection sensors to the optical lens (Fig. 5).

With respect to dependent claim 8, the interior walls of the chamber 58 in the apparatus of Patchell function to keep unwanted radiation from the sides from impinging on the detector (column 8, lines 32-38). In view of the desire to keep unwanted radiation from impinging on the detector, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the interior walls comprised an infrared absorbing material such that unwanted radiation (including, perhaps, that coming through the portions of the optical lens 48, 50 with no optical power and thus not from the coverage zone) did not reach the detector.

With respect to dependent claim 9, the detector in the apparatus of Patchell is located on a vehicle 12.

With respect to dependent claim 10, the detector in the apparatus of Patchell is located in such a manner that it detects one or more objects 20 in a blind spot region 36 of the vehicle 12.

With respect to independent claim 11, Patchell discloses a detector 24 for detecting thermal radiation in multiple coverage zones (Fig. 1) comprising a support structure (column 9, lines 44-45), a first thermal detection sensor S1 coupled to the support structure and arranged to detect thermal energy in a first coverage zone 34, a second thermal detection sensor S2 coupled to the support structure and arranged to detect thermal energy in a second coverage zone 34, and an optical lens 48, 50 coupled to the support structure (Fig. 4A) and arranged to direct thermal energy from the first coverage zone to the first detection sensor and to direct thermal energy from the second coverage zone to the second thermal detection sensor. The support structure in the apparatus of Patchell comprises a conductive heat sink 60 (column 9, lines 2-4). Without further definition on the part of the applicant, the use of "an" does not prohibit multiple lenses. Nevertheless, while Patchell is explicit that the two sensors S1 and S2 may be housed in a single support structure, the disclosure does not state unequivocally that a single "optical lens" performs the two acts of direction from

zones 34 to the two sensors. Galvin *et al.* shows (Fig. 6) that the use of an optical lens 32 arranged to direct thermal energy from a first coverage zone to a first thermal detection sensor 34 and arranged to direct thermal energy from a second coverage zone to a second thermal detection sensor 36 has long been known. In view of the single support structure and the problems Patchell identifies when the sensors have different temperatures at column 15, lines 28-41, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the lens 48, 50 had a sufficient extent such that the direction of thermal energy from the two zones to the two sensors (respectively) occurred through a single optical lens. A compact arrangement in which the sensors see an optical lens of similar temperature in the respective field of view would result.

With respect to dependent claim 12, the first and second thermal detection sensors in the apparatus of Patchell comprise an infrared sensor (column 5, lines 21-30).

With respect to dependent claim 13, the infrared sensor in the apparatus of Patchell comprises a thermopile sensor (column 8, lines 14-30).

With respect to dependent claim 14, the heat sink 60 in the apparatus of Patchell is further coupled to the optical lens (through circuit board 46 and the element creating cavity 58, Fig. 5) and to the first and second thermal detection sensors to substantially uniformly distribute heat (column 9, lines 2-4).

With respect to dependent claim 15, the first and second thermal detection sensors in the apparatus of Patchell are coupled to the heat sink 60 via a thermally conductive adhesive (column 8, lines 62-65).

With respect to dependent claim 16, the support structure in the apparatus of Patchell comprises interior walls extending from each of the first and second thermal detection sensors to the optical lens (Fig. 5) and defining a chamber 58. The interior walls of the chamber 58 in the

apparatus of Patchell function to keep unwanted radiation from the sides from impinging on the detector (column 8, lines 32-38). In view of the desire to keep unwanted radiation from impinging on the detector, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the interior walls comprised an infrared absorbing material such that unwanted radiation (including, perhaps, that coming through the portions of the optical lens 48, 50 with no optical power and thus not from the coverage zone) did not reach the detector.

With respect to dependent claim 17, the detector in the apparatus of Patchell is located on a vehicle 12.

With respect to dependent claim 18, the detector in the apparatus of Patchell is located in such a manner that it detects one or more objects 20 in a blind spot region 36 of the vehicle 12.

With respect to independent claim 19, Patchell suggests a method of detecting thermal radiation in multiple coverage zones (Fig. 1) corresponding to the disclosed detector 24 which would comprise the steps of providing a thermal detector having first and second thermal detection sensors S1, S2 and an optical lens 48, 50 (Fig. 4A) for directing thermal energy from first and second coverage zones 34 to the first and second thermal detection sensors, detecting a first temperature in the first coverage zone 34 with the first thermal detection sensor S1, wherein thermal energy passes through the optical lens to the first thermal detection sensor, and detecting a second temperature in the second coverage zone 34 with the second thermal detection sensor S2, wherein thermal energy passes through the optical lens to the second thermal detection sensor. Without further definition on the part of the applicant, the use of "an" does not prohibit multiple lenses. Nevertheless, while Patchell is explicit that the two sensors S1 and S2 may be housed in a single support structure, the disclosure does not state unequivocally that a single "optical lens" performs the two acts of passage from zones 34 to the two sensors. Galvin *et al.* shows (Fig. 6) that the use of an optical lens 32

arranged to pass thermal energy from a first coverage zone to a first thermal detection sensor **34** and arranged to pass thermal energy from a second coverage zone to a second thermal detection sensor **36** has long been known. In view of the single support structure and the problems Patchell identifies when the sensors have different temperatures at column 15, lines 28-41, it would have been obvious to one of ordinary skill in the art at the time the invention was made to specify that the lens **48, 50** had a sufficient extent such that the passage of thermal energy from the two zones to the two sensors (respectively) occurred through a single optical lens. A compact arrangement in which the sensors see an optical lens of similar temperature in the respective field of view would result.

With respect to dependent claim 20, the method of Patchell further comprises the steps of processing the first and second temperatures to determine the presence of a thermal emitting object (column 13, lines 48-50).

With respect to dependent claim 21, the method of Patchell further comprises the step of substantially uniformly distributing heat through the detector with a heat sink **60** (column 9, lines 2-4).

With respect to dependent claim 22, the method of Patchell further comprises the step of keeping unwanted radiation from the sides from impinging on the detector (column 8, lines 31-38). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an infrared absorbing material such that unwanted radiation (including, perhaps, that coming through the portions of the optical lens **48, 50** with no optical power and thus not from the coverage zone) did not reach the detector.

With respect to dependent claim 23, the first and second coverage zones **34** in the method of Patchell are in a region **36** relative to a host vehicle **12**.

With respect to dependent claim 24, the method of Patchell further comprises the step of detecting one or more objects **20** in a blind spot region **36** of the vehicle **12**.

Response to Submission(s)

3. The amendment filed May 1, 2006 has been entered.
4. Applicant's arguments filed May 1, 2006 have been fully considered but they are not persuasive.

Applicant's representative asserts that the detection system in Patchell "essentially employ multiple thermal detection sensors each having a separate lens element for receiving and detecting thermal energy in a coverage zone" but in view of the explicit disclosure of a single support structure as discussed in the rejection there is no necessary reason to understand that a *separate* lens element is required. Applicant's representative cannot point to any portion of the Patchell disclosure which requires separate lenses with the use of a single case.

The disclosure in Fig. 6 of Galvin *et al.* is of a single sheet **32**. As such, the detector of Galvin *et al.* comprises an optical lens of the types recited.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (*i.e.*, a single lens) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Indeed, the argument by Applicant's representative would appear to require that a single set of refractive surfaces perform the recited directing, but the clause as recited and the reformulation "an optical lens coupled to the support structure and arranged to direct thermal energy from the first coverage zone to the first thermal detection sensor *and* an optical lens coupled to the support

structure and arranged to direct thermal energy from the second coverage zone to the second thermal detection sensor” are equivalent, as a single set of refractive surfaces directing both types of energy would meet the terms of such a reformulation.

With respect to the Asano *et al.* reference, there is *no such agreement*. Asano *et al.* remains available to the Examiner for use at such time as applicant’s representative amends the claims to recite a single lens. Indeed, it is likely that the reference already applies under 35 U.S.C. 102(b) against at least claim 1, but Patchell was used in view of the disclosure of an automobile, making the rejection of claims 9, 10, 17, 18, 23, and 24 easier. Thus the review by applicant’s representative can be in no way considered conclusive. The references supplied by examiner in the European Patent Office may be considered cumulative, and the omission of a rejection using one or more of the listed references is not an indication that such rejections are not available to the Examiner.

For at least the reasons explained above, Applicant is not entitled to a favorable determination of patentability in view of the arguments submitted May 1, 2006.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (571) 272-2437. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov/>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Constantine Hannaher
Primary Examiner